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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,331

03/20/2006

Frank Miller

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KENYON & KENYON LLP  
ONE BROADWAY  
NEW YORK, NY 10004

EXAMINER

GORMAN, DARREN W

ART UNIT

PAPER NUMBER

3752

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DELIVERY MODE

11/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,331	<b>Applicant(s)</b> MILLER ET AL.	
	<b>Examiner</b> Darren W. Gorman	<b>Art Unit</b> 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/9/05, 8/13/08</u> .                                         | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The IDS forms filed on May 9, 2005 and August 13, 2008 are hereby acknowledged and have been placed of record. Please find attached a signed copy of each PTO 1449.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the feature(s) canceled from the claim(s).

- As recited in claim 16, the drawings do not show an inner diameter of the first section being greater than an inner diameter of the second section.
- As recited in claim 23, the drawings do not clearly show the wall thickness of the first section equaling the wall thickness of the second section.
- As recited in claim 24, the drawings do not show diameters of the bore holes increasing in a downstream direction.

No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 14-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Grieve et al., US Patent Application Publication No. 2002/0108309.

Grieve (see Figure 2) shows a chemical reformer system for obtaining hydrogen, including a fuel injector (124); an atomization tube (all parts in the upstream to the downstream direction which are in fluid communication with each other, including tubular portion 120 with the downstream narrowed section leading into piping 105, piping 105, and tubular portion 102, read on the "atomization tube"), the atomization tube including at least a first section (as applied, only the tubular portion at 120 up to the

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beginning of the narrowed downstream end of 120) and a second section (the narrowed downstream portion of 120, piping 105, and through all portions of the section at 102), the first section having at least one of an outer diameter and a wall thickness that is different than that of at least a portion of the second section; an air inlet (at 123); and at least one metering aperture (outlet opening from fuel injector 124, opening into tubular portion 120). Grieve further shows that the inner diameter of the region at 120 (applied to the recited “first section”) is greater than an inner diameter of at least a portion of the system which the Examiner has applied to the recited “second section”. Grieve also shows holes at 108, 112 and at the downstream end of 103 which read on the “bore holes” in the “second section”. As to the subsection recitations and relative dimensions and locations of bore holes of the subsections recited in claims 19-22, the “second section” as applied by the Examiner can be arbitrarily divided into “subsections” which include the recited features in order to meet the limitations of the claims.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieve et al.

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Regarding claims 23 and 24, Grieve does not expressly show or disclose that the wall thickness of the first section equals the wall thickness of the second section, nor does Grieve show or disclose that the diameters of the bore holes per level increase in a downstream direction. Since Applicants have not shown these recited features in the drawings submitted, then such features can be interpreted as being “conventional features” which are not essential to the understanding of the invention (see 37 CFR 1.83(a)), and are thus not features which patentably distinguish the instant invention from the prior art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Grieve such that the wall thickness of the first section equals the wall thickness of the second section, and such that the diameters of the bore holes per level increase in a downstream direction, since these features are conventional and thus do not patentably distinguish the claimed invention over the known prior art.

Regarding claim 25, Grieve does not expressly disclose any of the recited the processes by which the atomization tube is formed, however it is noted that the recitations of claim 25 are merely product by process recitations. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious variant from a product in the prior art, the claim is unpatentable even though the prior product was made by a different process (see MPEP 2113). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the atomization tube of Grieve from at least one of the processes recited in claim 25.

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Regarding claims 26 and 27, Grieve does not expressly disclose specific diameter ranges of the bore holes, nor does Grieve expressly disclose optimal ratios between a diameter and a length of the bore holes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine optimal bore hole diameters and optimal diameter-to-length ratios of the bore holes of Grieve, since it has been held where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W. Gorman whose telephone number is 571-272-4901. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on 571-272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Darren W Gorman/  
Primary Examiner, Art Unit 3752

/D. W. G./  
Primary Examiner, Art Unit 3752